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ARMY AVIATION TESTING: Need to
Reassess Consolidation Plan

March 15, 1996

The Honorable Jon Kyl
The Honorable John McCain
United States Senate

The Honorable Howard P. (Buck) McKeon
The Honorable Ed Pastor
The Honorable Bill Thomas
House of Representatives

This report responds to your request that we examine a tentative decision made by the Secretary of the Army on June 29, 1995, to move Army aviation testing activities now at Edwards Air Force Base, California, to Fort Rucker, Alabama, and retain Yuma Proving Ground. This decision represented a shift from previous Army studies, which had recommended consolidating all Army aviation testing at Yuma. Our report addresses (1) the Army's cost and savings analyses for three consolidation options involving Edwards Air Force Base, Fort Rucker, and Yuma Proving Ground and (2) Defense-wide implications of the Secretary's tentative decision.

Background

Technical testing of Army aviation systems, such as helicopters, and related support equipment is the responsibility of the Test and Evaluation Command (TECOM), under the U.S. Army Materiel Command. Since 1990, TECOM has maintained three principal aviation testing sites. The Aviation Technical Test Center (ATTC) at Fort Rucker is the primary site for testing aviation systems and support equipment. The Airworthiness Qualification Test Directorate at Edwards Air Force Base is the primary site for airworthiness qualification testing. Yuma Proving Ground tests aircraft armaments and sensor systems. The principal customers for TECOM's aviation testing are the aviation program managers who purchase this equipment for the Army and are currently headquartered at the Aviation and Troop Command (ATCOM), St. Louis, Missouri.¹

Significant reductions in funding, personnel, and test workloads in recent years, as well as projections for continued reductions as part of overall

¹Under a decision approved by the 1995 Base Closure and Realignment Commission, ATCOM aviation missions are slated to be relocated to Redstone Arsenal, Huntsville, Alabama.

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defense downsizing,² drove TECOM in 1992 to examine options³ for reducing its testing infrastructure. Internal TECOM studies resulted in a recommendation ultimately endorsed by the Army's Vice Chief of Staff in late 1993 to consolidate all three Army aviation technical testing organizations at Yuma Proving Ground. TECOM's proposal was reinforced by the results of a separate study sponsored by ATCOM and completed in December 1993.

The 1995 base realignment and closure (BRAC) process also looked at testing facilities from a Defense-wide perspective. That process identified options for consolidating Army testing at a single-site as well as an option for eliminating greater excess testing capacity by consolidating aviation testing across service lines. Consolidation or cross-servicing of common support functions such as test and evaluation activities proved very contentious among the services in BRAC 1995 and produced limited results. None of the aviation testing options were adopted as part of the BRAC process. However, Army BRAC officials indicated to our staff in January 1995 that a consolidation of its aviation testing was planned outside the BRAC process.

While awaiting formal approval of the single-site consolidation at Yuma, in the spring 1995, the Army Secretary's staff updated TECOM's cost and savings analyses of two options: the single-site at Yuma and a dual-site at Fort Rucker and Yuma. On June 29, 1995, the Secretary tentatively approved the dual-site option because the analyses showed that greater short-term savings could be achieved with that option.

Results in Brief

Our analysis confirmed the Army's position that a dual-site consolidation involving Fort Rucker and Yuma Proving Ground provided the greatest short-term savings to the Army and offers significant long-term savings. A single-site consolidation at Yuma also offers significant long-term savings and, according to various Army testing and program manager officials, a more optimum testing environment for future testing. On the other hand, the Office of the Secretary of Defense has raised questions about whether either option would be the optimum choice from a Defense-wide perspective if consolidation of testing activities across the services could

²In January 1993, ATTC was authorized 119 military and 179 civilian positions. As of January 1996, ATTC was authorized 95 military and 116 civilian positions for fiscal year 1996; those authorizations are expected to be further reduced to 27 military and 102 civilian positions for fiscal year 1997.

³TECOM examined various options involving five sites for either a single- or dual-site consolidation of its aviation testing infrastructure. They included Yuma Proving Ground, Arizona; Eglin Air Force Base, Florida; Fort Rucker, Alabama; Edwards Air Force Base, California; and Naval Air Station, Patuxent River, Maryland.

be achieved. However, the services and the Department of Defense (DOD) have not reached consensus about how best to downsize and consolidate testing activities, even though Congress has encouraged them to do so. Given this situation, DOD has an opportunity to seek other options from a longer term DOD-wide perspective. This will require stronger commitment and leadership on the part of the Office of the Secretary of Defense.

Adjustments to Army Data Needed to Fully Account for Projected Consolidation Savings

Because TECOM analysts considered only the impacts on TECOM's budget, they did not fully account for projected savings in operating costs, particularly in the personnel area. Also, some adjustments were needed in the methodology for and calculations of recurring costs and savings involving base operations, real property maintenance, and aircraft maintenance to obtain a more complete picture of relative costs and savings among the competing locations and the time required to offset implementation costs. (See app. II for a discussion of adjustments.) Table 1 shows the Army's projected one-time implementation costs; annual recurring savings; and the time it takes, from the year consolidation begins, for savings to begin to exceed costs from each consolidation option.⁴ Table 2 shows the same information based on our adjustments to the Army's data.

Table 1: Army Projections of One-Time Costs, Annual Recurring Savings, and the Time Needed to Offset Costs From Three Consolidation Options

Dollars in millions			
	Fort Rucker/Yuma option	Edwards/Yuma option	Yuma single-site option
One-time costs	\$3.2	\$3.3	\$16.5
Annual recurring savings	2.3	2.1	3.5
Years before savings exceed costs	1.4	1.6	4.7

Note: The Army assumed that savings would begin the same year in which the consolidation action was initiated.

⁴Since the updated data developed for the Secretary's decision included only two consolidation options, we also obtained data from the Army to update its previously considered Edwards/Yuma dual-site option in order to more accurately compare the three options.

Table 2: Adjusted Estimate of One-Time Costs, Annual Recurring Savings, and the Time Needed to Offset Costs

Dollars in millions			
	Fort Rucker/Yuma option	Edwards/Yuma option	Yuma single-site option
One-time costs	\$3.2	\$3.3	\$16.5
Annual recurring savings	4.4	3.0 to 3.3	5.4 to 6.3
Year savings exceed costs	1.8	2.2 to 2.1	4.4 to 3.9

Notes: 1. Our adjusted estimate assumes that savings would begin to accrue in the year following initiation of the consolidation action.

2. Because of uncertainties about actual recurring savings under the consolidation options, our adjusted data used the Fort Rucker/Yuma option as a baseline and reflected a range of recurring savings at the other two locations. See discussion in appendix II.

As table 2 shows, the adjusted data indicates higher annual recurring operating savings from each option. Recurring savings remain the greatest from the Yuma single-site option, but the offsetting of implementation costs (including military construction) still takes longer with this option than with the other two options.

Long-Term Savings

Like the Army, we projected savings from the consolidation options over a 20-year period, following the approach used by DOD in its base realignment and closure process.⁵ The Army discounted long-term savings at a 2.75 percent rate—the same rate it used in conjunction with its 1995 base realignment and closure analysis.⁶ However, as noted in our report on the 1995 BRAC process,⁷ the current Office of Management and Budget approved discount rate of 4.85 percent would have been more appropriate for the 1995 BRAC process.

Table 3 shows the projected net present values of the savings for each option using the Army's cost data and the 2.75 percent discount rate.

⁵All BRAC costs and savings were projected to occur over a 20-year period and were adjusted, or discounted, to fiscal year 1996 dollars. Discounting reflects the time value of money by transforming gains and losses from different time periods to a common unit of measurement. The discount rate is also used as a factor in determining the number of years before the government realizes a return on its investment, that is, the point at which savings begin to exceed costs associated with the consolidation action.

⁶While the Army staff applied a discount rate to project long-term savings, it did not use a discount rate in determining a payback period. The payback periods for options that the Army staff briefed to the Secretary of the Army, as shown in table 1, were developed using simple division rather than discounted dollars.

⁷See Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closure and Realignment (GAO/NSIAD-95-133, Apr. 14, 1995).

Table 4 shows our adjustments to the Army's data, including use of the 4.85 percent discount rate.

Table 3: Discounted Savings Using the Army's Data

Dollars in millions			
Return period	Fort Rucker/Yuma option	Edwards/Yuma option	Yuma single-site option
Short term (6 years)	\$9.7	\$8.4	\$3.0
Mid term (10 years)	17.2	15.1	14.2
Long term (20 years)	32.7	29.2	37.3

Note: Includes the Army's assumption that savings would begin the same year in which the consolidation action was initiated.

Table 4: GAO's Estimate of Discounted Savings

Return Period	Fort Rucker/Yuma option	Edwards/Yuma option	Yuma single-site option
Short term (6 years)	\$15.6	\$9.5 to 10.8	\$6.8 to 10.6
Mid term (10 years)	27.6	17.7 to 19.8	21.6 to 27.9
Long term (20 years)	49.4	32.6 to 36.2	48.4 to 59.2

Notes: 1. Assumes that savings would begin in the year following initiation of the consolidation.

2. Because of uncertainties about actual recurring costs under the consolidation options, our adjusted data used the Fort Rucker/Yuma option as a baseline and reflected a range of recurring savings at the other two locations. See discussion in appendix II.

As tables 3 and 4 show, the Fort Rucker/Yuma dual-site option offers the Army the greatest short-term savings, which the Army considers important in today's constrained budget environment. The adjusted data show that both the Fort Rucker/Yuma dual-site and Yuma single-site options have long-term savings that are much greater than those for the Edwards/Yuma dual-site option. The 20-year cost savings for the Yuma single-site option are at least comparable to, and possibly greater than, the Fort Rucker/Yuma dual-site option. Under the least savings case shown, for those two options, there would be about a \$1 million difference in projected long-term savings between the two options—a difference that could be eliminated with a reduction of about \$100,000 in annual operating costs for the Yuma single-site option. The costs and savings from the Yuma single-site option are based on the premise that required military construction would be completed before the consolidation. Completing

the military construction after the consolidation would result in increased operating costs and reduced savings.⁸

Other Cost and Savings Issues

Neither we nor the Army included several factors in cost and savings calculations because they were not easily quantified and because no consensus could be reached on what those costs and savings should be.

According to officials at Edwards, movement of the base's testing operation to Fort Rucker could result in significant recurring costs to transport test aircraft and personnel to distant ranges, such as Yuma, to complete necessary testing operations. An Army aviation official at Edwards estimated these costs could be about \$400,000 per year, based on prior tests conducted at Edwards. Another estimate from a Yuma official, based on an evaluation of future testing of the new Comanche aircraft, suggested that additional transportation costs could run as high as \$1 million annually. Fort Rucker officials, while acknowledging that transportation costs could increase, believe that the actual costs would not be as high as projected. A number of factors made it difficult for us to identify the most likely costs. First, prior tests are not necessarily indicative of future testing requirements. Second, Army testers already use multiple sites around the United States for various tests—sites other than the three discussed in this report. Third, Fort Rucker officials indicated they would likely seek testing sites closer to Fort Rucker if the consolidation plan is enacted. Thus, while we believe that additional transportation costs are likely with the Fort Rucker/Yuma option, it is not clear what those costs would be.

Officials at Fort Rucker noted that it has a contractor-operated mini-depot repair capability to maintain the large number of aircraft associated with its aviation school. Documentation showed that the aviation test center can use this capability, particularly the electronic equipment test facility, to achieve significant savings in time and dollars over the costs of repair at a regular depot facility. Center officials estimated 1-year savings of about \$1.9 million through the use of this contract. Army testing officials at Yuma and Edwards agreed that this mini-depot does provide an advantage to aviation testing at Fort Rucker. However, our other reviews of depot operations have shown that the services have excess depot capacity, which increases customer costs. At the same time, to the extent to which the practices of the mini-depot at Fort Rucker minimize customer costs

⁸The chief of ATCOM's Test and Evaluation office told us that it would be difficult to consolidate testing at Yuma without completing the military construction.

over those at a regular depot, it raises a question why depot maintenance practices should not be modified more broadly so that such savings would not be limited to just Fort Rucker. These variables make it unclear what maintenance savings should be attributed to any testing consolidations involving Fort Rucker.

Officials at each of the locations identified additional benefits and synergism from being located with other activities at their respective locations. However, such benefits, while undoubtedly real, were more qualitative in nature and not easily quantified from a cost standpoint or had cost advantages insufficient to affect the relative savings associated with a particular consolidation option. Additionally, other issues such as air space, safety, and weather were raised by officials at selected locations to suggest the relative merits of one location over the other. These also were more qualitative in nature and not easily quantified from a cost standpoint. While various Army officials and Army testing consolidation studies point to Yuma Proving Ground as providing the optimum testing environment for the Army, we found no indication that testing could not be conducted safely at the other locations.

Excess Capacity in DOD Testing Infrastructure Signals Need for Consolidations

Various studies in recent years, including DOD's 1995 base realignment and closure review, have concluded there is excess aviation test and evaluation capacity across DOD and have noted the need for reductions in keeping with overall defense downsizing. Likewise, Congress has urged DOD to downsize and consolidate testing activities. However, the services have been unable to agree on how best to achieve such consolidations.

During the 1995 BRAC process, a cross-service review group, comprising representatives of each of the services and the Office of the Secretary of Defense, identified several alternatives for the services to consider as they evaluated their bases for potential closure or realignment. One alternative was to shift Army aviation testing from Fort Rucker and Edwards Air Force Base to Yuma. Another option, with greater excess capacity reduction potential across the services, was to consolidate the test and evaluation of air vehicles at a single DOD center at either the Navy's Patuxent River, Maryland, testing facility or Edwards Air Force Base. Consolidation of Army aviation testing at one of these sites was contingent upon agreement by the Air Force and Navy for consolidation of their aviation testing. However, the services disagreed greatly over how to

reduce their excess testing capacity, and little progress was made, particularly in the area of cross-servicing.⁹

Congress has also encouraged downsizing, consolidation, and restructuring of the services laboratories and test and evaluation infrastructure, including rotary wing aircraft. Section 277 of the National Defense Authorization Act for Fiscal Year 1996 (P.L. 104-106), requires that the Secretary of Defense, acting through the Test and Evaluation Agent Executive Board of Directors,¹⁰ develop and report to congressional defense committees, by May 1, 1996, a plan to consolidate and restructure DOD's laboratories and test and evaluation centers by the year 2005.

Of more immediate concern to DOD was the Army Secretary's June 1995 tentative decision to consolidate Army aviation testing at Fort Rucker/Yuma. The Director, Test Systems Engineering and Evaluation, in the Office of the Under Secretary of Defense for Acquisition and Technology, expressed concern that Fort Rucker was not part of DOD's Major Range and Test Facility Base (MRTFB). He noted in a letter to the Test and Evaluation Executive Agent Board of Directors on September 12, 1995, that there had been a long-standing understanding within the DOD testing community that any consolidation of test and evaluation activities should be at a MRTFB facility unless there was a compelling reason otherwise. He also noted the principle of selecting courses of action that are optimum for DOD rather than for a single program or service. The Army, tasked with responding on behalf of the Board, noted that personnel and budget constraints required the Army to take immediate action to reduce costs in many areas; additionally, the Army noted that it was these economic circumstances, as well as the Army requirement to achieve short- and medium-term budgetary savings, that led to its decision.

Several service officials we met with also questioned the selection of a non-MRTFB facility (Fort Rucker) in light of future directions of aviation testing. These officials indicated that advanced helicopter systems are increasingly employing integrated electronics and, as a result, it is important to test the electronics and airworthiness at the same time. Various officials also suggest that it is important to do testing of the aircraft configured with its weapon systems, operating the electronic equipment, and firing the weapons. They also said it is important to do

⁹See Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closure and Realignment (GAO/NSIAD-95-133, Apr. 14, 1995).

¹⁰According to an agreement reached in August 1993, the vice chiefs of staff of the services serve as a board of directors with executive agent authority over the services' test and evaluation infrastructure investments and consolidation.

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integrated testing to avoid gaps in testing programs. ATCOM's 1993 study of aviation testing noted that as weapons and electronic warfare equipment become a more integral part of the air vehicle, it is increasingly important that the whole system, not merely its parts, be tested. This suggests the importance of locating testing at a MRTFB facility.

Recommendation

There is a continuing need to reduce and consolidate excess infrastructure within DOD, including that which exists within the services testing community. Also, the Army has a compelling need to consolidate its aviation testing because of reductions in its workload and continuing reductions in authorized personnel. Consequently, we recommend that the Secretary of Defense, in conjunction with the Test and Evaluation Executive Agent Board of Directors, reexamine the Army's aviation consolidation plan within the context of its congressionally mandated plan for consolidating laboratories and test and evaluation facilities. Such a reexamination should include a timely determination of whether DOD could reduce excess testing capacity and achieve greater long-term savings Defense-wide through consolidation of Army aviation testing on a cross-service basis and, if so, determining the appropriate locations and action plan for achieving such a consolidation.

Agency Comments and Our Evaluation

In official oral comments, DOD generally concurred with this report and agreed to examine the Army's aviation consolidation plan within the context of its congressionally mandated plan for consolidating laboratories and test and evaluation facilities, due to Congress by May 1, 1996. However, DOD also agreed to the Army proceeding with its current aviation consolidation plan, but only to the extent that near-term savings can be realized, and holding in abeyance any actions such as construction or other investments that could be lost if far-term consolidation plans differ from the Army's short-term actions. DOD's agreement with the Army moving forward with its current consolidation plan raises questions about the extent to which the issue of cross-servicing will be dealt with in the near-term. We continue to believe that a serious examination of the potential for cross-servicing in the test and evaluation arena is warranted.

DOD also expressed the view that our adjustments to the Army's cost and savings analysis, while not affecting the outcome of our review, did result in what it considered an inflated estimate of expected annual savings in our report. Our approach, following methodology employed in the BRAC process, made appropriate and consistent calculations of one-time and

long-term costs and savings for each location option; in doing so, we considered costs and savings both to the Army as a whole as well as to the test and evaluation program. We believe that this is an appropriate approach to fully account for expected costs and savings.

Our scope and methodology are discussed in appendix I.

Unless you announce its contents earlier, we plan no further distribution of this report until 15 days after its issue date. At that time, we will send copies to the Chairmen, Senate Committee on Armed Services; Subcommittee on Defense, Senate Committee on Appropriations; House Committee on National Security; and Subcommittee on National Security, House Committee on Appropriations; the Director, Office of Management and Budget; and the Secretaries of Defense and the Army.

Please contact me at (202) 512-8412 if you or your staff have any questions concerning this report. Major contributors to this report were Barry W. Holman, Assistant Director; Raymond C. Cooksey, Evaluator-in-Charge; and David F. Combs, Senior Evaluator.

Henry S. Blodgett Jr.
for

David R. Warren, Director
Defense Management Issues

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Abbreviations

ATTC	Aviation Technical Test Center
ATCOM	Aviation and Troop Command
BRAC	Base Realignment and Closure
DOD	Department of Defense
GAO	General Accounting Office
MRTFB	Major Range and Test Facility Base
TECOM	Test and Evaluation Command

Scope and Methodology

We obtained and reviewed various studies completed by the Army's Test and Evaluation Command (TECOM) and others pertaining to the consolidation of aviation test facilities. Discussions were held with pertinent officials at the Department of the Army headquarters; TECOM headquarters at Aberdeen Proving Ground, Maryland; and TECOM test sites at Yuma Proving Ground, Arizona; Edwards Air Force Base, California; and Fort Rucker, Alabama. We obtained and analyzed various data at each of these locations to assess the completeness and reasonableness of the data included in the Army's consolidation studies and data used by the Secretary of the Army in making his June 1995 tentative decision to consolidate testing at two sites. We did not attempt to develop budget quality data, but focused on the adequacy of data to provide relative comparisons among competing locations. Because we had concerns about the comparability of private sector wage data used by the Army in projecting aircraft maintenance costs, we obtained current Department of Labor wage rate data to provide another basis for comparing potential costs. In assessing projected costs and savings for each consolidation option, we also performed selected sensitivity analyses to determine how changes in some data elements would affect the relative costs and savings of each location.

To broaden our perspective on aviation test and evaluation issues and future requirements, we held discussions with key testing officials in the Office of the Secretary of Defense, the Army's Aviation and Troop Command, the Air Force Flight Test Center at Edwards Air Force Base, and the Naval Air Warfare Center at Patuxent River, Maryland.

Additionally, we reviewed pertinent documentation and analyses from the 1995 base realignment and closure process.

We conducted our work between August 1995 and January 1996 in accordance with generally accepted government auditing standards.

Adjustments to the Army's Cost and Savings Data

We made adjustments to the Army's costs and savings data to obtain a more complete picture of expected savings from consolidated testing activities. We factored in savings in two areas not fully reflected in the Army's analysis. The first involved the fact that TECOM had claimed only the savings proportional to its direct funding. Approximately 40 percent of TECOM's budget involves direct funding; the remainder is derived from customer billings. We, therefore, adjusted the savings upward to more fully account for total Army savings. The second area involved savings attributable to reductions in military personnel that would occur as a direct result of the consolidations. TECOM's written organizational concept outlining plans for consolidation cited specific expected reductions in military personnel because of consolidation. It had not included these savings in its analysis; we added them in.¹ These changes produced significant increases in projected annual recurring and long-term savings to the Army.

We made some adjustments to the Army's calculations of base operating support and real property maintenance services. Cost comparisons for this area had proven problematic for the Army, since the Aviation Technical Test Center was not billed for these services at Fort Rucker. Therefore, TECOM opted to develop average base operating and real property management costs based on actual costs at Fort Rucker and Edwards Air Force Base and apply that average to all three locations. TECOM officials did not have actual cost data for Yuma. We used the Army's data for Fort Rucker and Edwards to assess the impact on base operating costs for the various consolidation options. The effect was some decrease in projected savings from a consolidation at Edwards Air Force Base and increase in savings at Fort Rucker. Because comparable base operating cost data were not readily available for Yuma, and assuming that actual base operating costs at Yuma would likely be somewhere between those at Fort Rucker and Edwards, we applied an average cost figure to base operating costs at Yuma. The effect on the Yuma option was negligible.

We recognized a concern expressed by the Edwards community that actual Army/TECOM reimbursements to the Air Force for base operations were about \$400,000 less than those included in the Army's analysis. A counter, according to TECOM officials, is that the Aviation Technical Test

¹It has been the standard practice of each military service, in recent Base Realignment and Closure Commission (BRAC) rounds, to include projected savings from military personnel reductions associated with BRAC actions. Such was the case regarding the Army in the 1995 BRAC round, although there was no indication that the Army expected to make commensurate adjustments in its authorized end strengths. To the extent end-strength reductions are not made, these reductions do not result in direct budgetary savings to the government. However, they, like other reduction savings, do free up resources to be reassigned elsewhere as needed, providing a broader benefit to the Army.

Appendix II
Adjustments to the Army's Cost and Savings
Data

Center is not directly billed for any base operating support costs at Fort Rucker. Absent time for a more detailed assessment of base operating costs at each of the locations, we considered the Army's methodology, with adjustments as noted above, to represent a reasonable approach for comparing such costs. Nevertheless, we conducted a sensitivity analysis, reducing base operating costs at Edwards by \$400,000 to determine the impact on recurring savings at Fort Rucker and found that the relative cost advantage of each competing location remained unchanged.

In reviewing contracted aircraft maintenance cost estimates, we found broad differences in estimates of labor costs at the three locations. The Army's most recent study had used a wage differential of 5.7 percent between Fort Rucker and Yuma, based on actual experience at the two locations. However, it used a wage difference of 19 percent between Fort Rucker and Edwards Air Force Base, based on federal wage grade tables. The study assumed the work, if moved to Edwards, would be contracted out. Most recent Department of Labor wage rate data for aircraft mechanics showed the differences between Fort Rucker and Yuma and between Fort Rucker and Edwards Air Force Base, to be 28.2 percent and 25.8 percent, respectively. While Department of Labor wage rates provide a uniform basis for comparison, various Army officials have expressed concern that actual costs at the time a contract would be negotiated would be somewhat less than indicated by the Department of Labor data. For uniformity in comparing differences among the three locations, we chose to adjust the Army's data to reflect current Department of Labor wage differences among the three locations. However, assuming that actual costs could likely fall somewhere between the two approaches, our adjusted data on savings show a range of savings to reflect each approach. The low end, with smaller recurring savings, are based on Department of Labor wage differentials.

Our adjustments to the Army's data affected various cost and savings data elements. For example, the aircraft maintenance adjustments had the effect of increasing projected annual operating costs at Yuma and Edwards relative to Fort Rucker and reducing projected long-term savings at those locations. Also, while Yuma, as a single-site option, had greater savings in personnel costs, Yuma's aggregate savings were diminished by higher projected contract maintenance costs attributed to differences in area wage rates.